Amendments to the Claims:

The following listing of claims will replace any/all prior versions, and listings, of claims in the application, wherein additions are shown in underlined text and deletions are shown in strike-out text:

1. (Currently amended) A batch type atomic layer deposition apparatus, comprising:

a reaction chamber having a predetermined volume constituted with an upper plate, a lower plate and sidewalls;

a rotating plate loaded with a plurality of wafers, wherein each wafer is located in the reaction chamber and loaded radially at a predetermined position disposed in an identical distance from a center of the rotating plate;

a shower head having a cylinder part and a radial cone part for forcing a gas to flow toward an upper surface of the wafer as passing through a center of the upper plate, wherein the shower head faces a center of an upper surface of the rotating plate;

a heating plate having a heating zone capable of controlling a temperature of any area and being located on the lower plate with a predetermined distance of the rotating plate;

a cooling plate attached to an upper surface of the upper plate, the upper surface being located on the outside of the reaction chamber; and

a plasma excitement electrode being located between the cooling plate and the cylinder part of the shower head.

2. (Previously presented) The batch type atomic layer deposition apparatus as recited in claim **1**, further comprising an ion extraction electrode being located between the radial cone part of the shower head and the upper plate.

3. (Previously presented) The batch type atomic layer deposition apparatus as recited in claim **2**, wherein the ion extraction electrode is supplied with a DC voltage.

4. (Previously presented) The batch type atomic layer deposition apparatus as recited in claim **1**, wherein the plasma excitement electrode is constructed in a ring type structure and supplied with a RF power.

5. (Previously presented) The batch type atomic layer deposition apparatus as recited in claim **1**, wherein the radial cone part of the shower head has an angle ranging from about 120° to about 160°.

6. (Previously presented) The batch type atomic layer deposition apparatus as recited in claim **1**, wherein a separating distance between the radial cone part of the shower head and the rotating plate ranges from about 3.5 mm to about 7 mm.

7. (Currently amended) A method for an in-situ cleaning of a batch type atomic layer deposition apparatus with a reaction chamber and a shower head, the shower head having a cylinder part and a radial cone part, the method comprising ~~the steps of~~:

depositing an atomic layer on a wafer;

injecting a cleaning gas into the shower head;

controlling the temperature of the reaction chamber using a cooling plate located on the outside of the reaction chamber;

applying a RF power to a plasma excitement electrode when the cleaning gas passes through the cylinder part; and

inducing a reaction between the cleaning gas activated by the plasma excitement electrode and a remnant atomic layer on a rotating plate.

8. (Original) The method as recited in claim **7**, wherein the RF power of about 100 W to about 600 W is applied to the plasma excitement electrode.

9. (Previously presented) The method as recited in claim **7**, wherein the cleaning gas is a mixture of Cl_2 gas and Ar gas, each gas being injected separately.

10. (Currently amended) A method for an in-situ cleaning of a batch type atomic layer deposition apparatus with a reaction chamber, a shower head having a cylinder part and a radial cone part, and an ion extraction electrode surrounding the radial cone part, the method comprising ~~the steps of~~:

depositing an atomic layer on a wafer;

injecting a cleaning gas into the shower head;

creating an activated molecule of a cleaning gas through applying a RF power to a plasma excitement electrode surrounding the cylinder part;

controlling the temperature of the reaction chamber using a cooling plate located on the outside of the reaction chamber;

ionizing an activated molecule by applying an ion extraction voltage to ~~an~~ the ion extraction electrode; and

inducing a collision between the ionized molecule and a remnant atomic layer of a rotating plate.

11. (Original) The method as recited in claim **10**, wherein the ion extraction voltage applied to the ion extraction electrode ranges from about -500 V to about -50 V.

12. (Original) The method as recited in claim **10**, wherein the RF power applied to the plasma excitement electrode ranges from about 100 W to about 600 W.

13. (Original) The method as recited in claim **10**, wherein the cleaning gas is a mixture of Cl_2 gas and Ar gas, and each gas is injected separately.